

## Owner's Operators Programmers

FEBRUARY 1990. #26 A\$2.00.





## EDITORIAL

Hullo VZers, and others.

I am writing this three days before Christmas Day. What a wonderful and important day of the year it is for Christians and non-Christians throughout the world. A special time to celebrate the birth of JESUS and see friends and relatives again. And what a fantastic Christmas present for folk in East Germany and the other Soviet Bloc Countries. Who would have thought of this at this time last year. We must not forget the other wonderful happenings in other parts of the world either; South America and Africa.

VZ happenings on the other hand are rather sparse by contrast. Feedback from ODPs and readers in the last couple of years has been almost non-existent. Rather dissappointing for me.

Anyway time has finally arrived whereby I am going to publish only one more LE'VZ 200/300 ODP.

That's right. This issue #26 and the last issue #27 for May 1990.

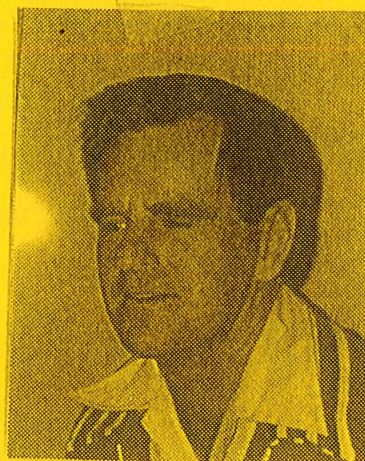
That last issue will complete six years of LE'VZ publication. I have done all the work myself other than contributions sent by a few very helpful folk. I give special thanks to them.

Any monies that ODPs have in credit after this LE'VZ OVER FIVE DOLLARS (\$5.00) will be sent to folk with the last issue.

I have to count the cost of postage and an Aust. Post money order will cost almost two dollars. I will not be accepting any new monies for the purchase of LE'VZ.

Another factor is that I am booked into hospital next September to have my right hip joint replaced and will be immobilised for some weeks. Then I can go jogging and skiing again, ripper!

Anyway I suggest that folk arrange to receive newsletter/s from the Hunter Valley VZ Users Group or VZ Downunder. The addresses are on page 14.



Feliz Ano Nuevo - Happy Newyear readers.

This section I am writing in 1990. I hope it has commenced for YOU in a good manner.

The Annual big Computer Expo 1989 held at the Brisbane RNA grounds was the usual affair. I have commented on previous shows before. If one has a couple of thousand dollars to spend they are very good. But for the average hobbieist there is not much of interest.

There were a couple of China based stands demonstrating software that handles the Chinese script; very clever. Not much on musical items except a little on the musical hardware called MIDI.

One just can't imagine what will be around at the start of the next decade - century; 2000 AD.

Well that's all for this time.

GOD BLESS JOHN.

## CONTENTS

Liven-up Animation & Graphics.	3.
In Brief.	7.
Flight Plan - BASIC programme.	8.
What's in the other Magazines.	9.
Word Game - BASIC programme	10.
LE'VZ Formats.	11.
Information Contacts.	11.
VSOFTWAREZ Software for Sale.	12.
Software discription.	13.
VSOFTWAREZ Firmware for Sale.	14.
Other User Groups.	14.

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OUR QUICKWRITE WORD PROCESSOR-TEXT EDITOR IS USED EXTENSIVELY.



# LIVEN-UP ANIMATION & GRAPHICS

## Part 2 by Bob Kitch.

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This is the second and final  
part of Bob's contribution.

### DISCUSSION OF MOVEUP.

The source code for MOVEUP is by far the most interesting and illuminating portion of the project. It consists of a number of general purpose "primitive" subroutines.

There are nine "fancy" screen move routines. The action of these is described by their titles - splat, open-up, roll up/down, push up/down, four bar roll down, and l-r/r-l sweeps. With the exception of the sweeps, all other screen moves involve vertical movements of the pictures. This movement is the easiest to program as consecutive blocks or lines of the screen are moved using the Block Move command. Most of the additional programming keeps track of the appropriate source, destination and size pointers. Usually either a 2K block (one full screen), or a 32 byte (one screen line), portion of memory is required to be moved.

The sweeps are much more difficult to program. The logic used to achieve the horizontal replacement, two bits at a time, is the subject of a further article on logical operators. Experienced programmers may follow the method through the comments inserted in the source code. Some very elegant mathematics is used.

All of the move routines write to a screen buffer rather than directly into the video display RAM area. Also during this write period, all interrupts are disabled so that processing speed is optimized. The screen buffer is used so that the video display may be interrupt driven such that flicker or hash is avoided.

The timing of the interrupt driven display, that eliminates the screen hash, is achieved by two routines that are called from the Interrupt Vector. The screen buffer is moved in two halves as there is insufficient time in the display flyback period to move the entire 2K screen. A display and pause routine is entered to permit the screen buffer to be moved into the video display RAM. The pause loop is located in the DOS ROM, and by choosing a suitable duration, a smooth movement can be obtained.

Two other general purpose subroutines are given that save and restore the register set to the stack upon entry and exit to any machine code. Furthermore, the register values are unchanged. Very useful.

Finally, the use of a Jump Table to enter the nine routines considerably simplifies the set-up of the USR pointers. This technique is to be recommended.

### FURTHER ENHANCEMENTS.

That about outlines the essentials of the programs. Note that instructions are inserted in the code to allow the procedures to be followed. Also the code has been written with specific constants inserted rather than generalized variables. For those who are interested, it is possible to store a couple of further screens in the top of bank 0 by setting the top-of-memory even lower but the elegance of the triple-nested loops is lost! (refer Load Map).

A further refinement of the loading and saving technique is shown in the code for THROWUP. On reflection and when the 24 screens are loaded into the buffers in hi-mem, there are in reality three 16K blocks of data extending from C000H to FFFFH. It would be convenient and a little faster, to save and load these 16K blocks to- and from- disk respectively. Dialog encountered during program execution indicates how this refinement can be achieved.

Observant programmers will notice that subroutine SCO "(Splat)" in MOVEUP is not used in the present version. This can be used in lieu of the 14 byte M/L routine and provide hash-free animation.

One further enhancement is to use data compression techniques to store the screens into the buffer areas. Most graphic screens have many sections of "shared" bytes, for example, in "background" areas. This would be a very fruitful area for experimentation as many more than 24 screens could be stored in the 64K pack.

I trust that this article provides some insight into an interesting area of programming. Should anyone wish to communicate with me on their efforts, then I would be pleased to do so. A number of these enhancements are operational on my "fully-fledged" version.

```

1 ;
2 ;SOURCE:START
3 ;ORIGIN:7200H (VRAM).
4 ;OBJECT:STARTUP
5 ;
6 ;THIS ROUTINE:-
7 ;1. LOWERS TOM TO "TOP"
8 ;2. RESETS POINTERS BY A NEW
9 ;3. RELOCATES DOS VECTOR TO
10 ; BELOW "TOP".
11 ;4. RUNS "FNAM" (T:FILE).
12 ;
13 ;
14 ;
15 TOP EQU 0BFFFH
16 ;VALUE FOR TOM.
17 CLS EQU 01C9H
18 ;CLEAR SCREEN.
19 NEW EQU 1B4DH
20 ;NEW ENTRY POINT.
21 TOM EQU 78B1H

```

GOTO 4



```

22 ;TOM POINTER.
23 JUMP EQU 0C3H
24 ;OPCODE FOR JUMP.
25 TURN EQU 0C9H
26 ;OPCODE FOR RETURN.
27 RDOS EQU 4004H
28 ;ENTRY POINT TO RESET DOS
29 ;VECTOR.
30 PWON EQU 4008H
31 ;ENTRY POINT FOR DISK POWER
32 ;ON.
33 READ EQU 45DBH
34 ;ENTRY POINT TO READ FILNAM.
35 VEC2 EQU 79ACH
36 ;VECTOR CALLED FROM 1A1CH.
37 ;
38 ;
39 ;
40 CALL CLS
41 LD HL,TOP
42 LD (TOM),HL
43 LD HL,ENT
44 LD (VEC2+1),HL
45 LD A,JUMP
46 LD (VEC2),A
47 JP RDOS
48 ;
49 ;
50 ENT POP HL
51 LD A,TURN
52 LD (VEC2),A
53 EI
54 CALL NEW
55 CALL PWON
56 DI
57 LD HL,FNAM
58 JP READ
59 FNAM EQU $
60 ;*LOADUP*:
61 END EQU $

1 ;
2 ;SOURCE:MOVE
3 ;ORIGIN:OB000H
4 ;OBJECT:MOVEUP
5 ;
6 ;SCREEN REPLACEMENT SUBS.
7 ; BY BOB KITCH.
8 ; 25/APR./89
9 ;
10 ;
11 ;
12 ;
13 VRAM EQU 7000H
14 ;START OF VIDEO SCREEN.
15 SSCN EQU 0B200H

16 ;START OF SCREEN BUFFER.
17 SZSC EQU 0800H
18 ;SIZE OF SCREEN.
19 HSZC EQU 0400H
20 ;HALF SIZE SCREEN.
21 ESCN EQU SSCN+SZSC
22 ;END OF SCREEN BUFFER + 1.
23 LLEN EQU 20H
24 ;LINE LENGTH IN BYTES.
25 NLIN EQU 40H
26 ;NUMBER OF LINES.
27 BIG EQU 0FFFFH+1
28 ;EQ. TO 65536D.
29 ZERO EQU 00H
30 ;ZERO FOR OFFSETS.
31 SBF1 EQU 0C000H
32 ;START OF PICTURE BUFFERS.
33 SBF2 EQU SBF1+SZSC
34 SBF3 EQU SBF2+SZSC
35 SBF4 EQU SBF3+SZSC
36 SBF5 EQU SBF4+SZSC
37 SBF6 EQU SBF5+SZSC
38 SBF7 EQU SBF6+SZSC
39 SBF8 EQU SBF7+SZSC
40 DLAY EQU 4038H
41 ;DELAY ROUTINE IN DOS.
42 DURD EQU 22H
43 ;DELAY DURATION IN MSEC.
44 TURN EQU 0C9H
45 ;OPCODE FOR RETURN.
46 JMP EQU 0C3H
47 ;OPCODE FOR JUMP.
48 IVEC EQU 787DH
49 ;3 BYTE INTERRUPT VECTOR.
50 ;
51 ;
52 ;JUMP TABLE FOR 9 PIC MOVES.
53 STRT JP SCO
54 JP SC1
55 JP SC2
56 JP SC3
57 JP SC4
58 JP SC5
59 JP SC6
60 JP SC7
61 JP SC8
62 ;
63 ;
64 ;SCREEN 0 - SPLAT.
65 SCO CALL SAVR
66 ;SAVE REGISTERS.
67 LD HL,SBF1
68 ;SOURCE - START OF BUFFER.
69 LD DE,SSCN
70 ;DEST - START OF SCREEN.
71 LD BC,SZSC
72 ;SIZE - SCREEN FULL.

73 LDIR
74 ;MOVE IT.
75 CALL DPLY
76 ;DISPLAY AND PAUSE.
77 CALL RESR
78 ;RESTORE REGISTERS.
79 RET
80 ;FINISH
81 ;
82 ;
83 ;SAVE REGISTERS AND DISABLE
84 ;INTERRUPTS FOR CALCULATIONS
85 ;AND MOVES.
86 SAVR DI
87 EX (SP),HL
88 ;PUT RET ADDR INTO HL & SAVE
89 ;HL - DOESN'T CHANGE SP.
90 PUSH DE
91 PUSH BC
92 PUSH AF
93 PUSH HL
94 ;PUT RET ADDR. ON TOP.
95 ;
96 ;
97 ;RESET HL TO ENTRY VALUE.
98 LD HL,11
99 ;2 TIMES NO. OF REGS. + 3
100 ADD HL,SP
101 ;POINT TO H-VALUE IN STACK.
102 PUSH AF
103 ;SAVE AF REG.
104 LD A,(HL)
105 ;AND PUT IN A REG.
106 DEC HL
107 ;NOW POINT TO L-VALUE.
108 LD L,(HL)
109 ;AND PUT IN L REG.
110 LD H,A
111 ;MOVE H-VALUE.
112 POP AF
113 ;RESTORE AF REG.
114 RET
115 ;
116 ;
117 ;RESTORE REGISTERS AND
118 ;ENABLE INTERRUPTS FOR
119 ;RETURN TO BASIC.
120 RESR POP HL
121 ;GET RET ADDR.
122 POP AF
123 POP BC
124 POP DE
125 EX (SP),HL
126 ;RESTORE HL & PUT RET ADDR.
127 ;ON STACK.
128 EI
129 RET
130 ;
GOTO 5

```



131;  
 132;SCREEN 1 - OPEN-UP.  
 133;USE STACK TO STORE UPPER  
 134;HALF POINTERS.  
 135;USE IX AND IY REGS. TO  
 136;STORE LOWER HALF POINTERS.  
 137SC1 CALL SAVR  
 138;SAVE REGISTERS.  
 139 PUSH IX  
 140 PUSH IY  
 141 LD HL,SBF1+HSZC  
 142;PT. TO START OF LOWER-HALF.  
 143 LD DE,SSCN+HSZC  
 144;PT. TO CORRESPONDING DEST.  
 145 PUSH HL  
 146;PUT SOURCE HL INTO IX.  
 147 POP IX  
 148 PUSH DE  
 149;PUT DEST. DE INTO IY.  
 150 POP IY  
 151 DEC HL  
 152;PT. TO END OF UPPER-HALF.  
 153 DEC DE  
 154;PT. TO CORRESPONDING DEST.  
 155 LD B,20H  
 156;HALF NO. OF SCREEN LINES.  
 157NLN1 PUSH BC  
 158;SAVE LINE COUNTER.  
 159 LD BC,LLEN  
 160;SIZE - 1 LINE.  
 161 LDDR  
 162;MOVE IT - UPPER HALF LINE.  
 163 PUSH HL  
 164;SAVE PTR. ON STACK.  
 165 PUSH DE  
 166;SAVE PTR. ON STACK.  
 167 PUSH IX  
 168;RESTORE LOWER HALF SOURCE.  
 169 POP HL  
 170 PUSH IY  
 171;RESTORE LOWER HALF DEST.  
 172 POP DE  
 173 LD BC,LLEN  
 174;SIZE - 1 LINE.  
 175 LDIR  
 176;MOVE IT - LOWER HALF LINE.  
 177 PUSH HL  
 178 POP IX  
 179;PUT SOURCE HL INTO IX.  
 180 PUSH DE  
 181 POP IY  
 182;PUT DEST. DE INTO IY.  
 183 CALL DPLY  
 184;DISPLAY AND PAUSE.

185 POP DE  
 186;RESTORE UPPER HALF PTRS.  
 187 POP HL  
 188 POP BC  
 189;RESTORE LINE COUNTER.  
 190 DJNZ NLN1  
 191;WHOLE SCREEN MOVED?  
 192 POP IY  
 193 POP IX  
 194 CALL RESR  
 195;RESTORE REGS.  
 196 RET  
 197;FINISH.  
 198;  
 199;  
 200;SCREEN 2 - ROLL DOWN.  
 201;NOTE THAT SCREENS 2 AND 3  
 202;ARE INTERCHANGED IN  
 203;DISPLAY SEQUENCE.  
 204SC2 CALL SAVR  
 205;SAVE REGS.  
 206 LD HL,SBF3  
 207;SOURCE.  
 208 LD DE,SSCN  
 209;DESTINATION.  
 210 LD B,NLIN  
 211;LINE COUNTER.  
 212NLN2 PUSH BC  
 213;SAVE LINE COUNTER.  
 214 LD BC,LLEN  
 215;SIZE - ONE FULL LINE.  
 216 LDIR  
 217;MOVE IT.  
 218 CALL DPLY  
 219;DISPLAY AND PAUSE.  
 220 POP BC  
 221;RESTORE LINE COUNTER.  
 222 DJNZ NLN2  
 223;SCREEN FULL?  
 224 CALL RESR  
 225;RESTORE REGS.  
 226 RET  
 227;FINISH  
 228;  
 229;  
 230;SCREEN 3 - PUSH DOWN.  
 231SC3 CALL SAVR  
 232;SAVE REGS.  
 233 LD HL,SBF4-1  
 234;SOURCE - END OF SBF3.  
 235 LD B,NLIN+1  
 236;LINE COUNTER.  
 237NSN3 PUSH BC  
 238;SAVE LINE COUNTER.

239 LD DE,ESCN-1  
 240;DESTINATION - END OF SCREEN  
 241 LD BC,SZSC  
 242;SIZE - SCREEN FULL.  
 243 LDDR  
 244;MOVE IT.  
 245 LD BC,SZSC-LLEN  
 246;1 SCREEN FULL LESS 1 LINE.  
 247 ADD HL,BC  
 248;RESET SOURCE ONE LINE ON.  
 249 CALL DPLY  
 250;DISPLAY AND PAUSE.  
 251 POP BC  
 252;RESTORE LINE COUNTER.  
 253 DJNZ NSN3  
 254;WHOLE SCREEN MOVED?  
 255 CALL RESR  
 256;RESTORE REGS.  
 257 RET  
 258;FINISH  
 259;  
 260;  
 261;SCREEN 4 - ROLL UP.  
 262SC4 CALL SAVR  
 263;SAVE REGS.  
 264 LD HL,SBF5-1  
 265;SOURCE - END OF SBF4.  
 266 LD DE,ESCN-1  
 267;DEST. - END OF SCREEN.  
 268 LD B,NLIN  
 269;LINE COUNTER.  
 270NLN4 PUSH BC  
 271;SAVE LINE COUNTER.  
 272 LD BC,LLEN  
 273;SIZE - 1 LINE.  
 274 LDDR  
 275;MOVE IT.  
 276 CALL DPLY  
 277;DISPLAY AND PAUSE.  
 278 POP BC  
 279;RESTORE LINE COUNTER.  
 280 DJNZ NLN4  
 281;SCREEN FULL?  
 282 CALL RESR  
 283;RESTORE REGS.  
 284 RET  
 285;FINISH  
 286;  
 287;  
 288;SCREEN 5 - PUSH UP.  
 289SC5 CALL SAVR  
 290;SAVE REGS.  
 291 LD HL,SBF5-1  
 292;SOURCE - END OF SBF4.



293 LD B,NLIN+1	350 DJNZ NLN6	407;LH. PIXEL PRESERVATION.
294;LINE COUNTER.	351;4 BARS DONE?	408 LD B,NLIN
295NSN5 PUSH BC	352 LD BC,SZSC-LLEN	409;SET LINE COUNTER.
296;SAVE LINE COUNTER.	353;DEC. FOR NEXT LINE.	410NLN7 LD A,(IX+ZERO)
297 LD DE,ESC-1	354 OR A	411;PUT INCOMING BYTE INTO ACC.
298;DESTINATION - END OF SCREEN	355;RESET C-FLAG.	412 AND L
299 LD BC,SZSC	356 SBC HL,BC	413;MASK OUT RH. PIXELS.
300;SIZE - SCREEN FULL.	357;POINT TO NEXT SOURCE LINE.	414 LD D,A
301 LDDR	358 EX DE,HL	415;SAVE LH. PIXELS.
302;MOVE IT.	359;SWAP SOURCE AND DEST.	416 LD A,(IY+ZERO)
303 LD BC,SZSC+LLEN	360 OR A	417;PUT REPLACED BYTE INTO ACC.
304;1 SCREEN FULL PLUS 1 LINE.	361;RESET C-FLAG.	418 AND H
305 ADD HL,BC	362 SBC HL,BC	419;MASK OUT LH. PIXELS.
306;RESET SOURCE ONE LINE BACK.	363;POINT TO DEST.	420 OR D
307 CALL DPLY	364 EX DE,HL	421;LOGICAL ADD RH & LH PIXELS.
308;DISPLAY AND PAUSE.	365;SWAP DEST AND SOURCE.	422 LD (IY+ZERO),A
309 POP BC	366 CALL DPLY	423;UPDATE SCREEN.
310;RESTORE LINE COUNTER.	367;DISPLAY AND PAUSE.	424 LD DE,LLEN
311 DJNZ NSN5	368 POP BC	425;INC. BY 1 LINE.
312;WHOLE SCREEN MOVED?	369;RESTORE LINE COUNTER.	426 ADD IX,DE
313 CALL RESR	370 DJNZ NBR6	427;POINT TO NEXT LINE/INCOMING
314;RESTORE REGS.	371;SCREEN FINISHED?	428 ADD IY,DE
315 RET	372 CALL RESR	429;POINT TO NEXT LINE/REPLACED
316;FINISH.	373;RESTORE REGS.	430 DJNZ NLN7
317;	374 RET	431;SEE IF LINES FINISHED?
318;	375;FINISH.	432 CALL DPLY
319;SCREEN 6 - 4 BAR ROLL DOWN.	376;	433;DISPLAY AND PAUSE.
320SC6 CALL SAVR	377;	434 LD DE,BIG-SZSC
321;SAVE REGS.	378;SCREEN 7 - L TO R SWEEP.	435;DEC. TO RETURN TO TOP OF
322 LD HL,SBF6	379SC7 CALL SAVR	436;CURRENT COLUMN.
323;SOURCE - START OF SBF6.	380;SAVE REGS.	437 ADD IX,DE
324 LD DE,SSCN	381 PUSH IX	438;POINT TO TOP OF CURRENT COL
325;DESTINATION - START OF SCR N	382 PUSH IY	439 ADD IY,DE
326 LD B,10H	383 LD IX,SBF7	440;POINT TO TOP OF CURRENT COL
327;NO. OF LINES/BAR.	384;POINT TO INCOMING BYTE.	441 POP BC
328NBR6 PUSH BC	385 LD IY,SSCN	442;RESTORE PIXEL COUNTER.
329;SAVE LINE COUNTER.	386;POINT TO REPLACED BYTE.	443 DJNZ NPX7
330 LD B,4H	387 LD B,LLEN	444;SEE IF ALL PIXELS FINISHED?
331;NO. OF BARS.	388;SET COLUMN COUNTER.	445 INC IX
332NLN6 PUSH BC	389NCL7 PUSH BC	446;POINT TO NEXT COLUMN.
333;SAVE BAR COUNTER.	390;SAVE COLUMN COUNTER.	447 INC IY
334 LD BC,LLEN	391 LD H,OFFH	448;POINT TO NEXT COLUMN.
335;SIZE - 1 LINE.	392;PIXEL MASK TEMPLATE.	449 POP BC
336 LDIR	393 LD B,4	450;RESTORE COLUMN COUNTER.
337;MOVE IT.	394;SET PIXEL COUNTER.	451 DJNZ NCL7
338 LD BC,200H-LLEN	395NPX7 PUSH BC	452;SEE IF COLUMNS FINISHED?
339;INC. FOR START OF NEXT BAR.	396;SAVE PIXEL COUNTER.	453 POP IY
340 ADD HL,BC	397 SRL H	454 POP IX
341;POINT TO START OF NEXT BAR.	398;SHIFT MASK FOR RH. PIXEL	455 CALL RESR
342 EX DE,HL	399 SRL H	456;RESTORE REGS.
343;SWAP SOURCE AND DEST.	400;PRESERVATION IN H-REG.	457 RET
344 ADD HL,BC	401 LD A,H	458;FINISH.
345;POINT TO START OF NEXT BAR.	402;PUT MASK INTO ACC.	459;
346 EX DE,HL	403 CPL	460;
347;SWAP DEST AND SOURCE.	404;.NOT.MASK IN ACC.	461;SCREEN 8 - R TO L SWEEP.
348 POP BC	405 LD L,A	462SC8 CALL SAVR
349;RESTORE BAR COUNTER.	406;NOT.MASK IN L-REG. FOR	463 PUSH IX
		464 PUSH IY

GOTO 7



## IN BRIEF

465 LD IX,SBF8+1FH  
 466;TOP OF R.H. COL.  
 467 LD IY,SSCN+1FH  
 468;TOP OF RH. COL. ON SCREEN.  
 469 LD B,LLEN  
 470NCL8 PUSH BC  
 471 LD H,OFFH  
 472 LD B,4  
 473NPX8 PUSH BC  
 474 SLA H  
 475 SLA H  
 476 LD A,H  
 477 CPL  
 478 LD L,A  
 479 LD B,NLIN  
 480NLN8 LD A,(IX+ZERO)  
 481 AND L  
 482 LD D,A  
 483 LD A,(IY+ZERO)  
 484 AND H  
 485 OR D  
 486 LD (IY+ZERO),A  
 487 LD DE,LLEN  
 488 ADD IX,DE  
 489 ADD IY,DE  
 490 DJNZ NLN8  
 491 CALL DPLY  
 492 LD DE,BIG-SZSC  
 493 ADD IX,DE  
 494 ADD IY,DE  
 495 POP BC  
 496 DJNZ NPX8  
 497 DEC IX  
 498 DEC IY  
 499 POP BC  
 500 DJNZ NCL8  
 501 POP IY  
 502 POP IX  
 503 CALL RESR  
 504 RET  
 505;  
 506;  
 507;MOVE SCREEN BUFFER TO VRAM.  
 508;DO IT IN TWO HALVES AS THE  
 509;PROCEDURE IS INTERRUPT  
 510;DRIVEN AND MUST BE  
 511;ACCOMPLISHED IN 4.49 MSECS.  
 512;TO AVOID FLICKER.  
 513;1K BLOCK MOVE TAKES  
 514;6.09 MSECS. ON 3.54MHZ Z80.  
 515;(NEAR ENOUGH!)  
 516;  
 517MTOP LD HL,SSCN  
 518 LD DE,VRAM  
 519 LD BC,HSZC  
 520 LDIR  
 521;MOVE TOP HALF SCREEN BUFFER

522 DI  
 523 LD BC,MBOT  
 524;SWAP INTERRUPT VECTOR  
 525;TO OTHER HALF.  
 526 LD (IVEC+1),BC  
 527 EI  
 528 RET  
 529;  
 530;  
 531MBOT LD HL,SSCN+HSZC  
 532 LD DE,VRAM+HSZC  
 533 LD BC,HSZC  
 534 LDIR  
 535;MOVE BOTTOM HALF SCRIN. BUF.  
 536 DI  
 537 LD A,TURN  
 538 LD (IVEC),A  
 539;SET INTERRUPT VECTOR TO RET  
 540;AS BOTH HALVES ARE MOVED.  
 541 EI  
 542 RET  
 543;  
 544;  
 545;INTERRUPT DRIVEN DISPLAY  
 546;ROUTINE. A PAUSE IS DONE  
 547;SO THAT THE TOP AND BOTTOM  
 548;HALVES OF THE SCREEN CAN BE  
 549;MOVED FROM THE SCREEN  
 550;BUFFER TO VRAM.  
 551;NB. BC REG. IS CHANGED BY  
 552;THIS SUBROUTINE.  
 553DPLY LD A,JMP  
 554 LD BC,MTOP  
 555 LD (IVEC+1),BC  
 556 LD (IVEC),A  
 557;SETUP INTERRUPT VECTOR.  
 558 EI  
 559 LD BC,DURD  
 560;DELAY MSEC.  
 561 CALL DLAY  
 562;DO A DELAY - DURING WHICH  
 563;TIME THE VRAM IS UPDATED.  
 564 DI  
 565 RET  
 566;RETURN TO MOVE ROUTINES.  
 567END EQU \*

More "fun" being had by the Victorian police force trying to track down an alleged gaming syndicate after Tattersalls lotto giant found that unauthorised entries for a \$12 million superdraw had taken place. More than 4000 entries had been seized.

Microbee is hanging on by the skin of its teeth. The company apparently owes about \$3 million. The creditors voted to accept 5 cents in the dollar.

South Australian firm Micro Byte is hoping to have their pcs built in Latvia, the USSR. The firm manufactures around 550 pcs per month and exports up to 12% of those.

Big "Blue", IBM plan to sack or axe about 10,000 of its overseas employies. When this was announced its share price on Wall Street slipped down to 37.5 cents. Apparently IBM chiefs think that Australia is a good place to lift the share price and will not be giving Australian employies the "dear John letter".

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# <<<< FLIGHT PLAN >>>>

This programme sent by Mr Ken Brazier can be used  
by small aircraft pilots.

```

10 CLS
12 GOSUB 600
13 CLS
15 PRINT"          "
16 PRINT
20 CLEAR 1000
21 INPUT"NO. OF SECTORS";M:MM=M+1:CLS
22 DIMBO(M),CO(M),BH(M),CH(M),BZ(M),CZ(M),Z(M),DO(M),P(MM),PN(M)
23 DIMFL(M),V(M),W(M),WZ(M),EO(M),EH(M),EZ(M),JO(M),JH(M)
24 DIMJZ(M),GO(M),GH(M),GZ(M),IO(M),IH(M),IZ(M),GS(MM),SH(M)
25 DIMZH(M),CP(M),Q(M),TX(M),B(M),TA(M),FW(M),DW(M),R(MM),DR(MM)
26 DIMCT(MM),C(M),CX(M)
40 PRINT:PRINT"          ":PRINT
41 INPUT"TRUE AIR SPEED";A
42 INPUT"F/F OUT";Y
43 INPUT"F/F HOME";YH
44 INPUT"F/F FOR DEP ALT.";YX
45 INPUT"DEP. T.A.S.";AZ
51 CLS
52 FORN=1TOM
53 PRINT"          "
54 PRINT
55 PRINT"          ";N
56 PRINT
60 INPUT"WIND SPEED OUT";BO(N)
65 INPUT"WIND DIRECTION OUT";CO(N)
70 INPUT"WIND SPEED HOME";BH(N)
80 INPUT"WIND DIRECTION HOME";CH(N)
81 PRINT" DEPRESSURISED"
82 INPUT"WIND SPEED HOME";BZ(N)
84 INPUT"WIND DIRECTION HOME";CZ(N)
90 INPUT"TRACK OUT";DO(N)
110 INPUT"DISTANCE IN N.MILES";Z(N)
150 V(N)=BO(N)/A
160 W(N)=BH(N)/A
165 WZ(N)=BZ(N)/AZ
170 EO(N)=(V(N)-(V(N)^3)/3)
180 EH(N)=(W(N)-(W(N)^3)/3)
185 EZ(N)=(WZ(N)-(WZ(N)^3)/3)
190 F=(180/3.1416)
200 JO(N)=EO(N)*F
210 JH(N)=EH(N)*F
215 JZ(N)=EZ(N)*F
220 GO(N)=CO(N)-DO(N)
230 GH(N)=CH(N)-(DO(N)-180)
235 GZ(N)=CZ(N)-(DO(N)-180)
240 IO(N)=SIN(GO(N)/F)
250 IH(N)=SIN(GH(N)/F)
255 IZ(N)=SIN(GZ(N)/F)
260 U=(COS((GO(N)-JO(N)*IO(N))/F))
270 K=(COS((GH(N)-JH(N)*IH(N))/F))
275 KZ=(COS((GZ(N)-JZ(N)*IZ(N))/F))
280 GS(N)=A-(BO(N)*U)
290 SH(N)=A-(BH(N)*K)
295 ZH(N)=AZ-(BZ(N)*KZ)
300 FL(N)=(Z(N)/GS(N))*Y:CLS
301 NEXT
302 FX=0
305 FORN=1TOM:FX=FX+FL(N):NEXT
319 FR=(FX*1.15)+(Y*.75)
320 PRINT"TOTAL FUEL REQUIRED";FR
330 INPUT"FUEL ON BOARD";FB
335 INPUT"TIME OF DEPARTURE";T
337 TE=T-INT(T):TI=(TE/60)*100:TP=(T-TE)+TI
340 FX=FX+(FB-FR)
341 IFM=1,PN=(FL(1)+(FB-FR))/((Y/GS(1))+(YH/SH(1))):GOTO381
349 FORN=1TOM:PN(N)=FL(N)/((Y/GS(N))+(YH/SH(N))):NEXT
350 FORN=1TOM
351 FW(N)=(Z(N)/GS(N)*Y)+(Z(N)/SH(N)*YH):NEXT
352 FORN=1TOM:R(N)=R(N-1)+FW(N):NEXT
353 IFFX<R(1),XP=FX/((Y/GS(1))+(YH/SH(1))):GOTO378
357 FORN=1TOM:IFFX=>R(N)ANDFX<R(N+1)THENXP=FX-R(N)
358 PN=XP/((Y/GS(N))+(YH/SH(N))):NEXT:GOTO380
378 PN=XP
380 O=0:FORN=1TOM:O=O+FW(N):IFO>FXTHEN382ELSENEXT
381 O=0:FORN=1TOM:O=O+Z(N):IFO>PNTHEN382ELSENEXT
382 IFPN<=Z(1)THENPNR=PNR:IFN<=1THEN390
390 PRINT"P.N.R.";PNR;"N.M.";
391 PRINT" INTO SECT.";N
392 NT=N-1:FORN=1TONT
400 TA(N)=(Z(N)/GS(N))
405 NEXT
406 IFNT=0,TA=PN/GS(1)+TP:GOTO408
407 TA=0:FORN=1TONT:TA=TA+TA(N):NEXT:TA=TA+PN/GS(N)+TP
408 IFTA>24THENP$=" NEXT DAY"
409 IFTA>24THENFTA=TA-24
410 PRINT" AT";INT(TA);".";
420 TM=(TA-INT(TA))*60
425 TM=TM+.5:TM=INT(TM)
430 PRINTUSING"##";INT(TM);
435 PRINTP$
438 FORN=1TOM:B(N)=Z(N)/GS(N):NEXT
440 FORN=1TOM:BF=BF+B(N):NEXT:BF=BF/2
442 FORN=1TOM:C(N)=Z(N)/GS(N):NEXT
444 FORN=1TOM:CT(N)=CT(N-1)+C(N):NEXT
445 IFBP<CT(1),448
446 IFBP=>CT(1),450
448 CP=BP*GS(1):GOTO455
450 FORN=1TOM:IFBP=>CT(N)ANDBP<CT(N+1)THENBT=BP-CT(N)
452 CP=BT*GS(N):NEXT
453 FORN=1TOM:CX(N)=(Z(N)*SH(N))/(GS(N)+SH(N)):NEXT
454 CX=0:FORN=1TOM:CX=CX+CX(N):NEXT
455 H=0:FORN=1TOM:H=H+Z(N):IFH>CXTHEN458ELSENEXT
457 IFCX<=Z(1),CX=CX:IFN<=1THEN484
458 FORJ=1TOM:P(J)=P(J-1)+Z(J):NEXT
459 FORJ=1TOM:IFCX>P(J)ANDCX<P(J+1)THENCX=CX-P(J):NEXT
460 NF=N-1
484 PRINT"C.P ";CP;"N.M.";

```

GOTO 9



```

485 PRINT" INTO SECT.";N
486 FORN=1TOM:Q(N)=(Z(N)/GS(N)):NEXT
487 IFNP=0,Q=CP/BS(1)+TP:GOTO489
488 Q=0:FORN=1TOM:Q=Q+Q(N):NEXT:Q=Q+CP/BS(N)+TP
489 IFQ>24THENV$=" NEXT DAY"
490 IFQ>24THENQ=Q-24
491 PRINT" AT";INT(Q);".";
492 X=(Q-INT(Q))*60
493 X=X+.5:X=INT(X)
494 PRINTUSING"##";INT(X);
495 PRINTV$
500 PRINT"DEPRESSURISED"
505 IFM=1,DP=(FL(1)+(FB-FR))/((Y/BS(1))+(YX/ZH(1))):GOTO526
510 FORN=1TOM:PN(N)=FL(N)/((Y/BS(N))+(YX/ZH(N))):NEXT
511 DP=0
512 FORN=1TOM
513 DW(N)=(Z(N)/GS(N)*Y)+(Z(N)/ZH(N)*YX):NEXT
514 FORN=1TOM:DR(N)=DR(N-1)+DW(N):NEXT
515 IFFX<DR(1)THENXD=FX/((Y/BS(1))+(YX/ZH(1))):GOTO521
519 FORN=1TOM:IFFX<DR(N)ANDFX<DR(N+1)THENXD=FX-DR(N)
520 DP=XD/((Y/BS(M))+(YX/ZH(M))):NEXT:GOTO525
521 DP=XD
525 SP=0:FORN=1TOM:SP=SP+DW(N):IFSP>FXTHENS27ELSENEXT
526 SP=0:FORN=1TOM:SP=SP+Z(N):IFSP>DPTHENS27ELSENEXT
527 IFDP<=Z(1)THENDP=DP:IFN<=1THENS42
542 PRINT"P.N.R.";DP;"N.M.";
543 PRINT" INTO SECT.";N
544 ND=N-1:FORN=1TOM:TX(N)=(Z(N)/GS(N)):NEXT
545 IFND=0,TX=DP/BS(1)+TP:GOTO548
546 TX=0:FORN=1TOM:TX=TX+TX(N):NEXT:TX=TX+DP/BS(N)+TP
548 IFTX>24THENV$=" NEXT DAY"
549 IFTX>24THENTX=TX-24
550 PRINT" AT";INT(TX);".";
560 TQ=(TX-INT(TX))*60
565 TQ=TQ+.5:TQ=INT(TQ)
570 PRINTUSING"##";INT(TQ);
571 PRINTW$:B=0:FORN=1TOM
572 B(N)=Z(N)/GS(N):NEXT:FORN=1TOM:B=B+B(N):NEXT:B=B+TP
573 IFB>24THENZ$=" NEXT DAY":IFB>24THENB=B-24
574 PRINT"ARRIVAL TIME"
575 IFB>24THENZ$=" IN TWO DAYS TIME":B=B-24
576 PRINT;INT(B);".";
578 BT=(B-INT(B))*60
579 BT=BT+.5:BT=INT(BT)
580 PRINTUSING"##";INT(BT);
590 PRINTZ$
598 GOSUB705
599 GOTO13
600 CLS
630 PRINT"
640 PRINT"THIS PROGRAM IS FOR WORKING OUT":PRINT
650 PRINT"P.N.R. AND C.P. FOR TRIPS WITH":PRINT
660 PRINT"MORE THAN ONE SECTOR.ALSO FOR":PRINT
670 PRINT"WORKING OUT DEPRESSURISED P.N.R":PRINT
680 PRINT"IT GIVES HOW MANY N.M. IT IS":PRINT
690 PRINT"INTO WHICH SECTOR ALSO THE TIME":PRINT
700 PRINT"WORKING ON A 24 HOUR CLOCK.";
705 PRINT@480," PRESS [F5] TO CONTINUE";

```

```

710 K$=INKEY$:I$=INKEY$
720 I$=INKEY$:IFI$=""THEN720
730 IFI$<>" THEN720
740 RETURN

```

## \* \* WHAT'S IN THE OTHER MAGAZINES \* \*

I think this section will help VZ users and DDPs know what other information is available from other sources. This means in club magazines, newsletter and journals as well as commercial publications.

### Hunter Valley VZ User Group - Sept/October 1989.

1. Relocating DOS C/R.
2. 64K RAM Pack and Hi-Res.
3. Boolean Logic Functions.
4. VZ 200 34K RAM Modifications.
5. Suite II Continued for Disc users.
6. IPL Sequence Decoded.

### VZ DOWN UNDER Sept/October 1989.

1. Disc Drive Indicator.
2. Z80 MPU Flag Operations.
3. Traps for young players.
4. Games Column.
5. Screen Sheet.
6. Animation & Graphics - LIVEN-UP.
7. BASIC Made Easy.

### VZ DOWN UNDER November/December 1989.

1. Boolean Logic Functions.
2. BASIC made easy.
3. READ, DATA and POKE Commands.
4. ROTATE Game - A BASIC Prog.

```

10 *****
20 * WORD GAME VER. 1.0*
30 *
40 * DARRYL LYNCH 1989 *
50 *****
100 REM
110 CLEAR 1000
120 DIM A$(20):DIM G$(25):DIM L$(25)
130 T=0:G=0:S=0
140 REM
150 DATA ELEPHANT,FALCON,RAILWAY,HORSE,COMPUTER SYSTEM
160 DATA MAN IN THE MOON,MEMORY CHIPS,SOFTWARE
170 DATA ANIMAL WITH LONG MEMORY,BIRD WITH WHEELS,STEEL ROAD
180 DATA OPENED UP THE WEST,YOUR USING ONE NOW,MYTHICAL BEING
190 DATA ELECTRIC STORAGE,THIS IS AN EXAMPLE OF SOME
200 REM
210 FOR X=1 TO 16
220 READ A$(X)
230 NEXT X
240 REM
250 R=RND(8):IF R=0 THEN 250
260 Q$=A$(R):QC$=A$(R+8)
300 REM
310 CLS:PRINT:PRINT
320 FOR X=1 TO LEN(Q$)
330 G$(X)=LEFT$(Q$,X)
340 L$(X)=RIGHT$(G$(X),1)
350 IF L$(X)=" " THEN PRINT " ";S=S+1:GOTO 370
360 PRINT "?";
370 NEXT X
380 PRINT:PRINT
390 REM
400 PRINT"~~~~~"
410 PRINT " ";QC$
420 PRINT@294,"ENTER A LETTER "
430 PRINT
440 INPUT "YOUR GUESS ";IN$
441 FOR X=28735 TO 28768
442 IF PEEK(X)=ASC(IN$) THEN SOUND 1,1;1,2:GOTO 420
443 NEXT X'CHECK FOR RECURRING LETTERS AND IGNORE THEM
450 G=G+1
460 REM
470 FOR X=1 TO LEN(Q$)
480 IF IN$=L$(X) THEN PRINT@(63+X),IN$:GOTO 510
490 NEXT X
500 SOUND 1,1:GOTO 420
510 T=T+1:SOUND 1,3;5,7;4,1;9,3;8,2;5,2;7,1
520 REM
530 IF T=(LEN(Q$)-S)THEN 540 ELSE 490
540 REM
550 CLS:PRINT"YOU GUESSED IT IN ";G;"TRIES!!!"
560 REM
570 IF G<=LEN(Q$) THEN PRINT"EXCELLENT":GOTO 600
580 IF G<=LEN(Q$)+5 THEN PRINT"WELL DONE":GOTO 600
590 IF G>LEN(Q$)+10 THEN PRINT"NOT SO GOOD" ELSE PRINT"OKAY"
600 SOUND 1,2;5,3;8,4;9,2;3,1;2,9;5,8;8,1
610 PRINT:PRINT

```

```

620 PRINT"DO YOU WANT TO PLAY AGAIN "
630 A$=INKEY$:A$=INKEY$
640 IF A$="Y" THEN 110
650 IF A$="N" THEN END ELSE 630

```



## LE'VZ FORMATS.

To help me time-wise to make LE'VZ a better magazine, and yourself to get the most out of it, please read this page.

ALL PRICES are in Australian Dollars.

CURRENT ISSUE price is A\$2.00 which includes surface/air postage within Australia and Air Mail to New Zealand. If you require more than one copy at one time, extra money must be sent to cover postage.

LE'VZ IS (C) COPYRIGHT.

BACK ISSUES are from #18 to the current issue. The price is \$3.00 each. This includes surface/air postage within Australia and Air Mail to New Zealand. If you require more than two copies at one time, extra money must be sent to cover postage.

We have most Back Issues in stock so we send what we have. If they are not sent within a couple of months, or with the next Current issue, please remind us.

ANY COMMUNICATION to me that requires a written reply must be accompanied by a Self Addressed Stamped Envelope. Do not expect an immediate reply, as I may need to contact others to formulate an answer.

Always state your record number. That could be between A02 and A98, B01 and B98 or C01 and C98. I have about 240 financial and unfinancial folk to keep track of. From LE'VZ #15, your record number and \$ credit are printed at the top of your name and address label.

DO NOT TELEPHONE ME ON SUNDAY!!!

CIRCUIT, ROM and PROGRAMME LISTING PRINTOUTS can be sent to you at 20C per A4 page plus postage. Do not ask for the complete VZ ROM listing as it is very long and is about 15MM in thickness.

LETTERS TO THE EDITOR are welcome either as general comments, complaints or asking for help. As with contributors, please ensure that your typewriter or printer prints clear and DARK. In the new 35 character normal size print, IE. 90MM line length, right justified or ragged. If you have to write by hand, use a RED pen and write in the format just mentioned.

ADVERTISING is a free service to ODPs who are financial, for personal use only. Please use the above 35 character format. About 100 words or less.

CONTRIBUTIONS are very welcome. Please write your letter on a separate piece of paper to your contribution, which allows separate filing of material. You can send in programme listings in M/L or BASIC. Hardware modification or equipment drawings. Hints and any useful information. As above, use the new 35 character format except if it is a large circuit, drawing or photo. If it is a full page contribution reduce by photo copying so that there is a 20MM margin all the way around.

In fact I would like to receive more hardware contributions. Also photos of your equipment would interest others. There is a little problem here though as different photo copiers reproduce certain colours differently. We can but try.

BASIC AND M/L PROGRAMME LISTINGS need special requirements.

Programme listings in M/L or BASIC can be sent as printed in normal size print which I can reduce-copy to make the master. Please make sure the print is dark and clear. The better approach is to send the programme on disc or tape. This enables me to give it a short test and check that it does at least does RUN. I can then print it in reduced mode while <LISTING> it.

The other method that I can now use is to convert the BASIC programme into a file suitable for use with our QUICKWRITE TEXT EDITOR and printed in the preferred column size, IE 80MM width. Note that due to "line wrap-around" when printing a line with less than 55 characters there will be lines that appear to not have a BASIC line number.

W files made with the D.S.E. Editor Assembler can also be loaded into our QUICKWRITE TEXT EDITOR, edited and printed as required.

TAPE/DISC CONTRIBUTIONS are therefore the best to send in this regard. This applies to programme listings or text. In regards to text, please send on E&F Wordprocessor tape which I can convert to QUICKWRITE Wordprocessor files or QUICKWRITE files on disc. Send in a padded post bag, and we will return it to you as soon as possible. We will pay the return postage. In this way if it is a programme, it can be later issued as a PUBLIC DOMAIN programme. You must let me know if you will allow this to happen.

Finally, I do not promise to print any or all contributions, this is at my discretion.

Muchas Gracias.

## INFORMATION CONTACTS

Here are some other folk who you can contact. Always include a SASE. if you require a written reply. If you don't live in the same country, send a couple of International Reply Coupons. These are available at Post Offices throughout the world. Please use good judgement if you telephone, perhaps not on Sundays. Check with the person concerned.

Graphics, M/L, printer info, educational.

Mr. Larry Taylor, 4 Columbia Court, SPRINGWOOD. QLD. 4127. phone (07) 208 1258.

M/L, hardware, BASIC programming and his special list of all types of info.

Mr. Bob Kitch, 7 Eureka St., KENMORE. QLD. 4069. phone (07) 378 3745.

Software list.

Mr. Eddie Tomes, 3 Kilkenny St., CAPALABA. QLD. 4157. phone (07) 390 2797.

General info.

Mr. Stan Noble, 307 Mt. Crosby Rd., CHUMAR. QLD. phone (07) 281 7854.

Communications, Modems, RTTY.

Mr. Irving Spackman, 78 Waima Crescent, TITIRANGI. AUCKLAND. New Zealand.

RTTY Units.

Mr. Col Paton. VK4BCP. 225 Pallas St., MARYBOROUGH. QLD. 4650. phone (071) 221 090.

## SOFTWARE FOR SALE FROM VZSOFTWAREZ

39 Agnes St., TOOWONG. QLD. 4066. AUSTRALIA. (07) 371 3707.

**DEEP DISCOUNT**

We discontinued most of our software as from the 1st. of November 1988.

We will only stock the most popular units.

The list under "EXISTING SOFTWARE" is items we will continue to sell. Those marked "+LL" include a LListing so that you can modify it to suit your own needs.

The list under "DISCONTINUED SOFTWARE" is what we still have in stock. Other items not listed at all will not be supplied. I have printed a list of software writers who may supply items direct to purchasers. It is just not viable for us to stock items that are not selling. Prices of most software is now reduced to clear stocks. We trust you understand.

All prices are correct at time of printing, but may change without notice. All articles available while stocks last. All prices in A\$.

All tape software includes postage up to four tapes.

When ordering software, always state := which computer VZ200 or VZ300, if you have an expansion RAM unit, and if you have a disc drive system connected or denote as below.

VZ1 = unexpanded VZ200. VZ2 = unexpanded VZ300.  
VZ3 = expanded VZ200. VZ4 = expanded VZ300.  
VZ5 = VZ200/VZ300 with 64K RAM PACK.

IE. TU6 = Tape only unit of U6. DB46 = Disc only unit of B46.

D/TU19 = Tape or Disc unit available of U19.

The price stated is for a Tape unit. If a Disc unit is required, add \$5.00. to the Tape price. The price of a Disc unit is as stated.

We accept BANKCARD and VISACARD, as well as bank, building society, credit union, private cheques, or Aust Post money orders.  
Make cheques payable to J.D'ALTON or VSOFTWAREZ.

### \* \* \* SUPERB SOFTWARE \* \* \*

**DB60. QUICKWRITE TEXT EDITOR V4 II \$40.00. 64K RAM Pack is a must.**

This unit is based on the QUICKWRITE WORDPROCESSOR. All the features of QW V3 and V4 are included, plus many more. The unit is probably the largest M/L software written for the VZ. You must have a 64K RAM expansion installed as the three top 16K banks are switched by the software as required. The file space for your document is about 40K which is ample for most requirements.

The unit is listed in the Australian Personal Computer magazines' Software Guide 1988. Files saved by QUICKWRITE V3 and V4 can be loaded as normal.

We will not allow any discount for previous purchasers of QW V3 or V4. Tape files made with the old DSE E&F WP can be also loaded. Another very useful feature is the ability to also load M/L source code files made with the DSE Editor/Assembler. The SET UP MODE is where one sets up the different printer commands IE. line length, column length, margin, page, gap, tab, indent, double spacing, number of copies etc. These are all saved on the disc document file which means the user saves time when loading the file at another time.

**OH yes, disc files can be MERGED with another file that is already in memory!!**

SCREEN ECHO is another feature which gives the user **MYSINYG (What You See Is What You Get)** which is great for column text with less than 31 characters, but is still helpful with longer lines, "wrap around" notwithstanding.

A special CONVERSION programme is included which allows the loading of BASIC programmes which do not have any **EXTENDED BASIC** commands written in them. See page three and four. An instruction booklet is of course included.

**QUICKWRITE AND TEXT EDITOR CAN ONLY BE PURCHASED FROM US.**

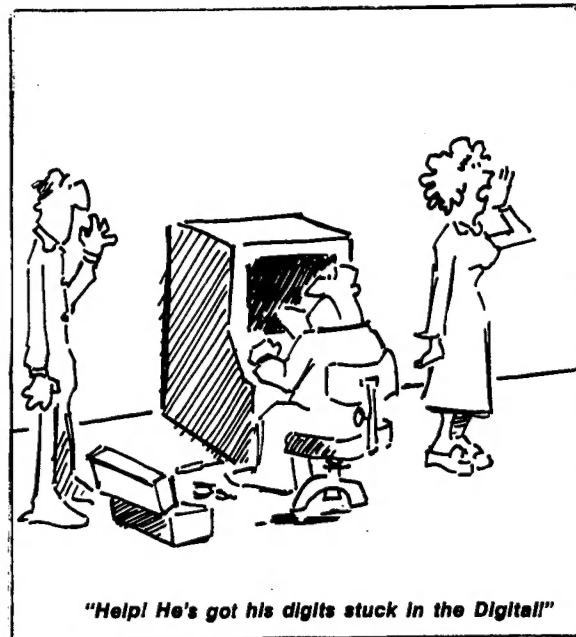
### + EXISTING SOFTWARE +

D/TB1 CASH BOOK LEDGER	\$ 20.00.	VZ3-VZ4. +LL.
DB4 LE'VZ D'BASE	\$ 50.00.	VZ3-VZ4. +LL.
DB16 CHEQUE LEDGER D.	\$ 40.00.	VZ3-VZ4. +LL.
D/TU19 COPY/PROTECT.	\$ 20.00.	VZ1-VZ4.
D/TU48 FILESEARCH.	\$ 5.00.	VZ1-VZ4.
D/TG50 ESCAPE RIVER.	\$ 8.00.	VZ3-VZ4.
D/TU49 VZ-EPSON PRINT/PATCH.	\$ 10.00.	VZ1-VZ4.
D/U56 DISKOPS4 +2.	\$ 10.00.	VZ3-VZ4.
DB57 QUICKWRITE V4.	\$ 40.00.	VZ3-VZ4.
D/TG58 FACTORY.	\$ 15.00.	VZ4.
DB60 QW-TEXT EDITOR.	\$ 40.00.	VZ5.

### DISCONTINUED SOFTWARE

**All 50% off  
While stocks last.**

D/TE5 COORDINATES	\$ 10.00.	VZ2-VZ4.
D/TE7 MICROSCOPE	\$ 8.00.	VZ3-VZ4.
DU47A DISKOPS2	\$ 10.00.	VZ4.
D/TG52 SOLD BATTLESHIPS.	\$ 15.00.	VZ2-VZ4.





## SOFTWARE DESCRIPTION

This is a description of the software that we continue to sell.

### DB57 QUICKWRITE V4 \$40.00. VZ3-VZ4.

This M/L WORDPROCESSOR is a more versatile version of the earlier unit, V3. It does NOT replace V3. The main differences being that printer print styles can be changed ANYWHERE in the text, not only from the beginning of a line as in V3. The user builds up a library of special codes to suit the printer which are embedded anywhere in the text. These are saved to disc for use as required. Scrolling to start, end and up and down is possible. Printing only a portion of text is also allowed. Disc commands, Kill and Retrieve are new.

Folk who already have V3 can purchase V4 at the discount price of A\$20.00.

### D/TG58 FACTORY. \$15.00. VZ4.

This is Larry Taylor's newest programme. It could be classified as an Educational unit as there is plenty of "brain work required". It is a fully High Resolution unit except for the first set of instructions.

FACTORY is a problem solving educational game for all ages. The main aim is to duplicate a product which has been produced by the VZ or by someone else. To do this, a factory is set up, which can consist of up to eight machines of three types. These are ROTATE, STRIPE and PUNCH. Using these machines, a square blank can be transformed into a finished product.

FACTORY will provide many hours of challenging and rewarding entertainment for all those who enjoy solving a puzzle.

### DB4 LE'VZ D'BASE. \$50.00. VZ3-VZ4.

For personal or small business use. Random access records on disc. An 80 column printer is catered for but not essential.

Create files	Add records to files
Edit records	Delete and Renumber
View and/or print records from any position in files, or any random selection	
Report prints	Address label prints
Search with or without indexing of records	
Save the index on disc	Exchange two records

and many more, a description sheet is available to those who are interested.

### T/DB1 CASHBOOK LEDGER \$20.00. VZ3-VZ4.

This is a business unit whereby you type in; date, paid to, cheque number, bank \$ column and 12 other money columns.

The data can be viewed, additions of the bank column and all of the other columns must be equal, if not corrections can be made.

The data can be saved onto tape at any time, usually after each data entry time.

Data is then loaded back at the end of the month, or when necessary, the additions as described above can again be checked and corrected if required.

Then if all is correct the data is printed out complete with headings. If there is still an error in the money columns it is stated at the bottom of the printout. Corrections can again be made and another printout done.

Because of the number of columns the 'left side' is printed first then the 'right side' on A4 paper on a GP100 printer or similar.

### DB16 CHEQUE LEDGER DISC \$40.00. VZ3-VZ4.

A small business unit based on T/B1 (CASHBOOK LEDGER) but for Disc operation only, in that all data is saved/loaded to/from Disc.

Type in :- date, paid to, cheque #, bank \$ and 12 other \$ columns. View data, correct (edit) data, printout of all data across two A4 sheets of paper by printing the left side then the right side. This allows

than an expensive wide business type.

Each "type in session" is saved to Disc, which is loaded in at the next session so that new data is typed in and merged. This is then saved to Disc. In this way the month's or period's file is built up ready to be printed at the close of the month/period.

At the close of that month/period, the final figures are saved on disc, so that they are used for the next month totals. All \$ totals are then calculated and printed at the bottom.

abels.

### D/TU19 COPY/PROTECT. \$20.00. VZ1-VZ4.

Incorporates two programmes BREAKPROOF and FILECOPIER. Using BREAKPROOF on BASIC programmes produces versions which autorun and will automatically restart if the <BREAK> key is pressed. FILECOPIER allows the transfer of MOST BASIC and Machine Code programmes to or from tape or disc.

### T/DU49 VZ-EPSON P/PATCH. \$10.00. VZ1-VZ4.

Larry Taylor's new M/L unit. It allows Epson or Epson compatible printers to LPRINT or LLIST all of the VZ's inverse and graphic characters. These same characters can also be dumped to the printer from the LO-RES screen in the COPY mode. In MODE(1), use of the COPY command will also dump the HI-RES screen to the printer.

COPY,n, allows a range of 4 to 8 to be selected to allow for varying line feeds for different printers. The utility adjusts for any size VZ memory. It also prints the Extended Basic commands that are used if a programme is written using the Extended Basic utility. Very handy! It can even be used with the Extended Basic utility loaded. A second command, LTAB(n), allows a left margin from 0 to 31 to be selected. This is for <LListing> a BASIC programme.

### DU56. DISKOPS4. \$10.00. VZ3-VZ4.

This is actually called DISKOPS4 + 2. It supercedes DU47 DISKOPS2 AND DU47A DISKOPS2 which are now Public Domain at the same price of \$10.00.

There are three separate utilities on the disc, and are for use with the DSE. Editor Assembler unit. There are eleven additional commands. Instructions are included. DISKOPS4 + 2 patches in permanently with ED/ASS. It then allows LOADING, SAVEing of source code and BSAVEing object code to/from disc. BSAVEing is the same as TO: for tape.

It also includes the normal disc BASIC commands. If a disc error occurs, then DISKOPS4 + 2 BASIC is entered. ASS is to enable the return to the ED/ASS. BASIC does the reverse.

Users of DISKOPS1 and 2 are also catered for.

### D/TG50 ESCAPE RIVER. \$8.00. VZ3-VZ4.

A game by Larry Taylor for two to six players. Players must work together to build a raft before a big flood arrives. The top four text lines are in Low Res. while the rest of the VDU. is in High Res. depicting the river, trees, people and so on.

## HARDWARE AND FIRMWARE FOR SALE.

VSOFTWAREZ, 39 Agnes St., TOOWONG. QLD. 4066.  
AUSTALIA. 'Phone (07) 371 3707.

As with our software, we are also going to discontinue most hardware sales. We will be continuing to sell books.

Unlike our software prices, these do NOT include postage. Always include extra money with your order and we will send any surplus back in the parcel or put it towards any credit you may wish, such as to LE'VZ, if you are an ODP. If you wish to receive LE'VZ, read page 11. Prices are in Australian dollars (AUD) as at the 1st. of Feb 1990. Items available while stocks last. There is NO WARRANTY on used items, but all are tested OK.

One LASER Light Pen with tape and interface used \$ 40.00.

### BOOKS

VPROGRAMMEZ-VZ-VZ new \$ 10.50 each.  
Surface postage in Australia and NZ is included.  
This is my own special book for beginners and advanced VZers.

VZ200-VZ300 Assembly Language Programming Manual  
for Beginners by Steve Olney. new \$ 25.00 each.

Beginners Guide to the VZ200/VZ300 Editor Assembler  
by Peter Schaper. new \$ 20.00 each.  
This book explains in simple language how to use the Dick Smith Editor Assembler unit. The little instruction booklet that comes with the tape is not very easy to understand to many folk. Peter uses some short M/L routines to explain the use of the Ed/Ass but he does not teach you M/L as such. As I mentioned previously in LE'VZ, the book will be printed and put together when ordered. I do this as soon as possible, but there will be a delay. There are fifty eight pages of A4 size so it is good value for money.

## OTHER VZ USER GROUPS & CLUBS.

### AUSTRALIA.

VZ DOWN UNDER.  
MR H.M Huggins, 12 Thomas St., MITCHAM. VIC. 3132.

HUNTER VALLEY VZ USERS GROUP.  
C/O P.O. Box 161, JESMOND. NSW. 2299.

WAVZ ENTHUSIASTS GROUP.  
MR Graeme Bywater, P.O. Box 388, MORLEY. WA. 6062.

BRISBANE VZ USERS WORKSHOP.  
C/O Mr. Bob Jones, 63 Tingalpa St.,  
WYNNUM WEST. QLD. 4178.

\* \* LAST LE'VZ  
#27 MAY 1990 \* \*

As mentioned in my Editorial I will be publishing only one more magazine, #27 May 1990.

If YOUR credit after this #26 magazine is \$5 or over then I will send you an Australia Post Money Order for \$1.00. OR MORE.

This is calculated thus:-

\$2.00 for the last magazine  
\$2.00 for post and money order  
\$1.00 value of credit

\$5.00 total.

There are a few ODPs who will receive around \$15.00 credit.

Who covereth the heaven with  
clouds, who prepareth rain for  
the earth, who maketh grass to  
grow upon the mountains.

PSALM 147:8

